



PEDIATRIC AUDIOLOGY TESTING SERVICES

Rochester Hearing and Speech Center is committed to helping children and their families develop the skills and abilities necessary to Communicate for Life. Our goal is to help you and those you love share life's most precious moments by helping you develop the possible hearing abilities at every stage of your child's life. We are a not-for-profit agency and the longest-standing and most experienced provider of speech, language, and hearing health services in Rochester, NY, and the surrounding communities.

Depending on your child's abilities and behaviors, testing methods may vary. Below are some examples:

- **Otoscopy** – A light with a magnifier is used to inspect the outer ear, ear canal, and eardrum for abnormalities.
- **Tympanometry** – When a sound moves through the hearing system, the eardrum and middle ear bones move back and forth. To measure this movement, a silicone-like dome is gently pressed to the ear canal opening to change the pressure in the ear canal space. Your child may feel a slight pressure change as if going up a steep mountain or while ascending/descending in an airplane.
- **Acoustic Reflex Threshold Testing** – A silicone-like dome is placed in your child's ear to measure the transmission of sound from the ear canal through the lower brainstem. Your child will hear beeping noises that start soft and gradually increase in volume.
- **Distortion Product Otoacoustic Emissions** – Tiny hairs in the inner ear transmit sound through the inner ear to the brain. To measure the health and function of these hairs, a silicone-like dome is placed in the ear canal. Your child will hear different tones and can watch the data appear on the screen of the equipment.
- **Pure Tone Air Conduction Testing** – This test measures how soft your child can hear the pitches that are used in speech. This testing may be completed in an open room through speakers if a child is unable to tolerate headphones or insert earphones (earbuds). However, to determine the specific capabilities of each ear, headphones or earphones are recommended. Responses from this test are plotted on an audiogram and can show if someone has normal hearing or a hearing loss.

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- **Pure Tone Bone Conduction Testing** – There is another route by which sound can reach the inner ear --by conduction through the bones of the skull. This testing measures the response of the inner ear by sending a vibration through the bones to the fluid of the inner ear. This method bypasses any blockages in the outer or middle ear (e.g., wax build-up, middle ear fluid/infection) and can determine if the hearing loss is caused by a possibly treatable and non-permanent pathology/blockage, or if the hearing loss may be permanent and located in the inner ear. A headband is placed on your child's head, and a variety of tones are sent through the mastoid bone located behind the outer ear. Then your child is instructed to respond to the sounds when they hear them. This test can be conducted successfully even on younger children.
 - **Visual Reinforcement Audiometry** – This is a method of pure tone testing for children about six months to two years old that involves teaching your child to turn to lights or dancing toys when they hear a sound.
 - **Conditioned Play Audiometry** – A method of pure tone testing for children about two to five years old makes a game of responding to the tones they hear. Your child is taught to put blocks, gems, toys, etc. into a bucket when they hear a tone.
 - **Conventional Audiometry** – For children about five years and older, your child will be asked to raise their hand when they hear a tone.
- If a child has inconsistent responses or is not able to complete the testing, the responses may indicate a false-positive hearing loss. In these cases, an Auditory Brainstem Response (ABR) test may be recommended to obtain clearer, objective measures of your child's hearing ability. ABR testing uses electrodes placed around the head to measure brain wave responses to sound at varying volumes. ABR testing is not considered to be the gold standard for obtaining information and is only recommended as a last resort.
- **Speech Recognition Threshold Testing** – In addition, to testing actual hearing capability, a speech recognition test can indicate the minimum hearing level at which your child can recognize certain words. Your child will be asked to repeat a set of words (i.e., cupcake, ice cream, baseball, etc.) or point to pictures of these words to determine the softest volume at which your child can still understand the words.
- **Word Recognition Testing** – Your child may also be asked to point to pictures or repeat words (e.g., show me the ball; say the word shoe). This testing determines your child's ability to discriminate speech sounds (e.g., moon vs noon).

